## **Amendments of the Claims**

The following listing of claims will replace all prior versions and listings of claims in this application:

## Listing of Claims

- 1. (original) A method of using a bottom hole assembly deployed in a borehole to estimate a formation property comprising the steps of:
- (a) generating a source signal from said bottom hole assembly;
- 5 detecting at least one receiver signal using said bottom hole assembly;
  - (c) computing a frequency dependent characteristic of said at least one receiver signal; and
- (d) using said frequency dependent characteristic to estimate said formation property.
  - 2. (previously presented) The method of claim 1 wherein said bottom hole assembly is a portion of a measurement while well logging system.
  - 3. (currently amended) The method of elaim 2 claim 1 wherein said source signal is a noise spectrum generated by a drill bit of said drilling apparatus.
  - 4. (previously presented) The method of claim 3 wherein said computing a frequency dependent characteristic is carried out by cross-correlation analysis.
  - 5. (original) The method of claim 4 wherein said at least one receiver signal comprises a direct formation signal, and wherein said formation surrounds said borehole.
  - 6. (original) The method of claim 4 wherein said at least one receiver signal comprises a reflected signal, and wherein said formation is ahead of said borehole.
  - 7. (original) The method of claim 1 wherein said frequency dependent characteristic is amplitude attenuation.
  - 8. (original) The method of claim 7 wherein the formation property is pore pressure.

- 9. (original) The method of claim 8 wherein said pore pressure is estimated from a frequency dependent attenuation relationship.
- 10. (original) The method of claim 1 wherein said frequency dependent characteristic is wave propagation velocity.
- 11. (original) The method of claim 10 wherein said formation property is pore pressure.
- 12. (original) The method of claim 1 wherein said formation property is lithology.
- 13. (original) The method of claim 1 wherein said formation property is fluid content.
- 14. (original) The method of claim 1 wherein said formation property is rock strength.
- 15. (previously presented) The method of claim 1 wherein said bottom hole assembly is a portion of a measurement while well logging system.
- 16. (original) The method of claim 1 wherein said source signal is generated by an active source located on said bottom hole assembly.
- 17. (previously presented) The method of claim 16 wherein said step of computing a frequency dependent characteristic is carried out by a frequency component analysis.
- 18. (original) The method of claim 1, wherein said at least one receiver signal comprises a direct borehole signal.
- 19. (original) The method of claim 18 wherein said formation property is permeability.
- 20. (currently amended) A method of continuously estimating the pore pressures of formations ahead of a bottom hole assembly, comprising the steps of:
- a) generating a source signal from said bottom hole
  assembly wherein said source signal is a noise spectrum generated by a drill bit;
  - b) detecting at least one receiver signal using said bottom hole assembly;
  - c) using said source signal and said receiver signal to estimate a pore pressure of at least one said formation; and
- d) repeating steps a), b), and c) as said bottom hole assembly moves sequentially downward through said formations.

- 21. (currently amended) A method of continuously monitoring the wellbore pressure safety margin corresponding to formations ahead of a bottom hole assembly, comprising the steps of:
- a) generating a source signal from said bottom hole assembly wherein said source signal is a noise spectrum generated by a drill bit;

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- b) detecting at least one receiver signal using said bottom hole assembly;
- c) using said source signal and said receiver signal to determine a pore pressure of said formation;
- d) using said pore pressure to monitor said wellbore pressure safety margin; and
  - e) repeating steps a), b), c) and d) as said bottom hole assembly moves sequentially downward through said formations.
  - 22. (currently amended) A method of continuously optimizing the weight of drilling mud used in a drilling operation, comprising the steps of:
  - a) generating a source signal from a bottom hole assembly wherein said source signal is a noise spectrum generated by a drill bit;
- b) detecting at least one receiver signal using said bottom hole assembly;
  - c) using said source signal and said receiver signal to determine a pore pressure of a formation ahead of said bottom hole assembly; and
  - d) using said pore pressure to specify a weight of said drilling mud which corresponds to a target wellbore pressure safety margin.
    - 23. (previously presented) The method of claim 1 wherein said using comprises estimating said formation property based on only one value of said characteristic, said value corresponding to a single frequency.
    - 24. (previously presented) The method of claim 23 wherein said value in based on more than one evaluation of said characteristic at said frequency.